NEHA SUNIL

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EDUCATION

CALTECH | 2015 – 2019

Pasadena, CA | G.P.A. 3.9

- B.S. Mechanical Engineering
  - Depth in Robotics

COURSES

- Core Courses in Math, Physics, Chemistry, and Computer Science
- EE/ME 7: Intro to Mechatronics, ME 11: Thermal Science & Fluid Dynamics, ME 12: Mechanics, ME 13: Intro to Mechanical Prototyping, ME 14: Design & Fabrication
- Bi 1x: Exploration through Experimentation, Bi 23: Nanorobotics, CNS 100: Intro to Computation and Neural Systems, CNS/Bi 256: Decision Making, MedE 101: Intro to Clinical Physiology and Pathophysiology for Engineers
- NEXT YEAR: ME 72: Engineering Design Laboratory, ME 50: Experiments and Modeling in Mechanical Engineering, ME/CS 133: Robotics, ACM 95: Applied Mathematics for the Physical Sciences, Ma 6: Discrete Mathematics

THE HARKER SCHOOL | 2011 – 2015

San Jose, CA | G.P.A. 4.48

EXPERIENCE

MECHANICAL ENGINEERING INTERN | June 2017 – September 2017

Nima Labs | Startup developing portable allergen sensors

- Redesigned multi-channel version of consumer device in aluminum for reliability and mitigation of user error.
- Device uses antibody-based strip and camera
- Iterative design through prototyping and testing

ENGINEERING INTERN | June 2016 – September 2016

Nima Labs

- Collaborated with hardware and chemistry teams
- Tested multi-channel version of device and discovered key variables of interest affecting chemistry development and camera readings
- Analyzed capabilities of product's camera

COMPUTATIONAL GENOMICS INTERN | June 2014 – August 2014

Stanford University

- Created a tool in R to select RNA guides to create library for a novel genome-editing technique using CRISPRs

RESEARCH EXPERIENCE

Bi 1x: Exploration through Experimentation | 2016

- Used image processing (through scikit-image in Python), brightfield & fluorescence microscopy, and optogenetics

Harker Labs | 2009 – 2014

- Experienced with ELISA assays, gel electrophoresis, statistical data analysis and visualization, principal component analysis

SKILLS

PROGRAMMING

- Experienced in Java, C, R, Python, Mathematica, MATLAB
- Familiar with D3.js, HTML, UML, VB, Arduino

APPLICATIONS

- Solidworks (DFM, Metal part design, Top-down modeling)
- Microsoft Office, Excel (Visual Basic), Google Forms
- Adobe: Photoshop, InDesign
- Final Cut Pro (Video Editor)
- Aurasma (Augmented Reality App)

ACHIEVEMENTS

- Certified Yoga Instructor with 500+ hours of teaching experience
- 2nd Degree Black Belt in Taekwondo
- Successful Aging Mini-Fellowship: Stanford School of Medicine | 2015
- America Library of Poetry Publication | 2015
- Scholastic Art & Writing Award (Photography) | 2015
- National Scholastic Press Association Journalism Honor Roll | 2015
- Presidential Volunteer Service Award | 2013

PROJECTS

AUTONOMOUS PRODUCT RETRIEVAL DEVICE

- Designed and fabricated device that moves across a shelf using a motor and lead screw, recognizes objects based on color, and pushes the selected object using a 3D-printed linear actuator
- Machined aluminum parts
- Controlled RGB sensor, servomotor, bidirectional motor-controller, and IR sensor using Arduino

ULTRASONIC TRANSDUCER-GUIDED BOAT

- Pontoon boat propelled by fans controlled using proportional control

TRANSMISSION

- Spur gear based transmission to generate enough torque to turn a bicycle wheel using a motor
- Machined acrylic base and walls
- Our team's transmission had the highest peak and steady-state power, resulting in the highest score